

REMARKS/ARGUMENTS

Favorable reconsideration of this application, in light of the following discussion is respectfully requested.

Claims 1-18 remain active in this case.

In the outstanding Office Action, Claims 1-18 were rejected under 35 U.S.C. §103(a) as being unpatentable over US 6,529,899 (hereinafter “Kraft”) in view of importing the Semantic Web in UDDI (hereinafter “Payne”) (art of record) and in further view of 5,862,325 (hereinafter “Reed”).

Applicants respectfully traverse the outstanding grounds for rejection, because in Applicants’ view the pending claims patentably define over the cited prior art.

More particularly, Claim 1 recites:

1. A Web service coordination plan creating apparatus, comprising:
 - a first storage section configured to store user data arranged as predicates having predicate arguments, each predicate argument indicating a value representing a state of a user;
 - a second storage section configured to store a database that associates preconditions representing, in predicate form, necessary conditions for users to use Web services via an information communication network, with post conditions representing, in predicate form, the effects of invocation of the corresponding Web services, the precondition and post condition predicates in the second storage including predicate arguments represented as variables; and
 - a coordination plan creating section configured to
 - receive a user’s request including search conditions for the Web services,
 - acquire, from the first storage section, matching user data in predicate form corresponding to the user’s request,
 - acquire, from the second storage section, a combination of Web services which satisfies the user’s request by logically combining preconditions and post conditions for a plurality of Web services including a first Web service having precondition matching the user data and a second Web service having a post condition matching the user’s request,
 - unify the preconditions and post conditions for the plurality of Web services acquired from the second storage section by replacing each predicate argument represented as a variable with a corresponding predicate argument representing a value of the state of the user acquired from the first storage section, each occurrence of a same variable being replaced with a same value of the state,
 - create a Web service linking plan that indicates a sequence of performing the combination of Web services using the unified preconditions

and post conditions, where the second Web service included in the combination of Web services is arranged to be performed after the first Web service included in the combination of Web services, and transmit the Web service linking plan to the user.

Applicants respectfully disagree with the analysis forming the basis of the outstanding ground for rejection because it is believed to be based on an oversimplification and trivialization of claimed features, for the reasons as next discussed.

To provide a better appreciation of what is claimed, perhaps a review of definitions is in order. For example, in the evaluation of the claimed invention, Applicants wish to affirm that “Web services” are software programs available via a communication network. A host computer (host) which uses a Web service and a host in which the Web service activates are usually different computers.

The present invention relates to a technique in which a sequence of performing the combination of Web services, which can be realized by a combination of a plurality of Web services in response to one user request, is determined. Applicants wish to make clear that the present invention is not intended to present a combination of a plurality of Web services in a composite data type, which is a notation system, as in Payne.

The “precondition” recited in Claim 1 refers to a constraint condition which should be satisfied with respect to the inner state of client software of a Web service before the Web service is invoked. The “post condition” refers to a constraint condition which should be satisfied with respect to the inner state of client software of a Web service after the Web service is invoked. That is, the post condition clearly shows the constraint condition about the effect on the inner state of client software of a Web service after the Web service is invoked.

Both of the conditions are expressed in a predicate form. However, both of the conditions are expressed in a combination of data types indicating the inner state, and the data value. It is also noted that the meta-data property explaining what service the Web service is and the value of the property are not the data type indicating the inner state and the data value, respectively.

Further, the Web service execution plan in general includes nth number of Web services (where n is an integer of two or more).

The above discussion is mainly supported by FIGS. 3 to 5 and the related description in the specification.

Turning now to the cited prior art, Applicants next explain differences between the claimed invention and each of the cited references.

Kraft relates to a technique of searching a single Web service by means of URL matching (see column 8, lines 26 to 32). In Kraft, however, the type of data of each of a precondition and a post condition is handled, but the value of data is not handled.

Payne does not disclose a method of calculating an execution plan of Web services. The execution plan of Web services is obtained by combining some logically executable Web services selected from a plurality of Web services, and arranging them in the order of execution.

Further, Payne merely searches ones that satisfy the user requirements from the Web service execution plan which has been created in advance. Payne does not create the Web service execution plan dynamically after receiving the user requirements.

Reed was cited in the outstanding Office Action as disclosing matching the user requirements in column 19, lines 37-41, and matching the user state (object state) in column 23, lines 27-31. However, the former description is merely about a notation system of a composite data type, and the latter description is merely about the meaning of an output report. Neither discloses the technique of “creating a Web service linking plan where the individual Web services included in the combination are arranged in the order of the logical combination.”

The outstanding Office Action asserts that Reed at column 34, lines 49-53 describes acquiring data which matches the user requirements. In this description, however, Reed merely discloses the structure that an instance of data (the value of data) belonging to the composite data type is shared by a service-side host and a client-side host, and that the

instance is stored in the client-side host, too. Applicants respectfully submit that Reed provides no description about concrete examples of calculation of the Web service execution plan and acquisition of the calculated result in Reed.

In light of the above analysis, it is respectfully submitted that Kraft, Payne, and Reed neither explicitly nor implicitly discloses a method of “create a Web service linking plan that indicates a sequence of performing the combination of Web services using the unified preconditions and post conditions, where the second Web service included in the combination of Web services is arranged to be performed after the first Web service included in the combination of Web services,” regardless of whether these references are considered singly or in combination. Indeed, even when the techniques disclosed in these references are combined, it is respectfully submitted that there is no description about the important feature of “create a Web service linking plan that indicates a sequence of performing the combination of Web services using the unified preconditions and post conditions, where the second Web service included in the combination of Web services is arranged to be performed after the first Web service included in the combination of Web services,” as claimed. Accordingly, as this feature is recited in each of Claims 1, 7 and 13, it is respectfully submitted that the outstanding ground for rejection has been overcome, and withdrawal thereof is respectfully requested.

In view of the above comments, and since no further issues are outstanding, and the

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present application is believed to be in condition for allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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